



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/911,585 | 07/24/2001 | Regina Schmitt | 2000 P 14892 US | 4359 |

7470 7590 03/15/2004

WHITE & CASE LLP
PATENT DEPARTMENT
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

EXAMINER

THAI, CUONG T

ART UNIT PAPER NUMBER

2173

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/911,585

Applicant(s)

REGINA SCHMITT

Examiner

CUONG T THAI

Art Unit

2173

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul/24/2001 Preliminary Amend. A.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-24 and 26-34 is/are rejected.
- 7) ☒ Claim(s) 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

PART III. DETAILED ACTION

1. This action is responsive to Preliminary Amendment filed on July/24/2001.
2. Claims 18-34 are presented for examination. Claims 1-17 have been canceled without prejudice.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claim 19 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 33 of copending

Application No.09/911,586. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the copending application and is covered by the copending application since the instant application and the copending application are claiming common subject matter on programming motion controller that incorporates with graphical elements, subprograms, and programming languages conversions.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim 33 of application Serial No 09/911,586 is broader and anticipated by claim 19 of the instant application.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18-21 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang.

As per claim 18, Weinhofer discloses a method for programming motion controllers as the technique of motion controllers may for example be provided in the

Art Unit: 2173

form of modules for a programmable controllers system (see col. 1, lines 47-48), wherein graphical elements comprising control structures and function blocks are linked using a graphical editor to form a motion control flowchart represented on a display device is taught by Weinhofer as the technique of when the user program is displayed to a user, the user program comprises the following graphical elements (see col. 3, lines 63-64) of the preferred programming interface 100 comprises a plurality of icons 110-124 which are made available to a user in a workspace 107 and which are connected by the plurality of connection lines 126. The icons 114 and 116 represent motion control axes, the icon 110 and 112 represent motion commands (see col. 6, lines 13-19 and Fig. 2) to form a motion control flowchart (see Fig. 3). Weinhofer, however, does not disclose the limitations of:

Providing a plurality of structured text subprograms and converting the structured text subprograms to a plurality of corresponding graphical elements comprising function interfaces corresponding to the respective structured text subprogram.

Zhang discloses the limitations of providing a plurality of structured text subprograms and converting the structured text subprograms to a plurality of corresponding graphical elements comprising function interfaces corresponding to the respective structured text subprogram as the technique of the textual code may be code from a text-based language, such as Perl, Mathematics or Java, or may be code such as C, C++, Pascal, Fortran, Cobol (see col. 4, lines 10-13) and during the execution of the graphical program, the code node is operable to invoke execution of the textual code comprised in the code node (see col. 4, lines 18-20).

Art Unit: 2173

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Zhang teachings of providing a plurality of structured text subprograms and converting the structured text subprograms to a plurality of corresponding graphical elements comprising function interfaces corresponding to the respective structured text subprogram into that of Weinhofer's invention. By doing so, the system would be enhanced by allowing user to create human program language prior to implement it to graphical structure program. Thus, the system would provide graphical based programming interface to its end user.

As per claim 19, Weinhofer discloses the invention substantially as claimed above. Wenhofer, however, does not discloses the limitations of: generating a structural textual language from the flowchart, converting the structural language in to a processor-independent pseudo code, loading the processor-independent pseudo code into the controller, and converting the processor-independent pseudo code into executable code.

Zhang discloses the limitations of generating a structural textual language from the flowchart, converting the structural language in to a processor-independent pseudo code, loading the processor-independent pseudo code into the controller, and converting the processor-independent pseudo code into executable code as the technique of the user creates a data flow program referred to as a block diagram (see col. 3, lines 6-7), the CIN is a block diagram node associated with a section of source code written in a conventional program language, i.e., text code (see col. 3, lines 47-

Art Unit: 2173

49), and the user compiled the source code first and linked it to form executable code(see col. 3, lines 49-50).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Zhang teachings of generating a structural textual language from the flowchart, converting the structural language in to a processor-independent pseudo code, loading the processor-independent pseudo code into the controller, and converting the processor-independent pseudo code into executable code into that of Weinhofer's invention. By doing so, the system would be enhanced by allowing user to create human language from the flowchart prior to sent it to the controller for converting to machine executable code. Thus, it would provide proper way to language conversion to the system.

As per claim 20, the limitation of wherein programming language commands are provided in the flowchart editor as a function of the associated hardware configuration is taught by Weinhofer as the technique of the icons 114 and 116 represent motion command of AXIS 1 and AXIS 2 hardware configuration. This claim is therefore rejected for the reason as set forth above.

As per claim 21, Weinhofer discloses the invention substantially as claimed above. Weinhofer discloses the graphical elements as the technique of when the user program is displayed to a user, the user program comprises the following graphical elements (see col. 3, lines 63-64). Weinhofer, however, des not disclose the limitation of

wherein the graphical elements are provided as programming language elements of the motion control flowchart.

Zhang discloses the limitation of wherein the graphical elements are provided as programming language elements of the motion control flowchart as the technique of the method for creating the graphical program includes the user selecting a code node for inclusion in the graphical program, wherein the code node is displayed on the screen. The user then selects or enters textual code that is comprised in or displayed in the code node. The textual code may be code from a text-based language, such as Perl, Mathematics or Java, or may be code such as C, C++, Pascal, Fortran, Cobol, etc., or may be a script from a scripting language (see col. 4, lines 10-13).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Zhang teachings of wherein the graphical elements are provided as programming language elements of the motion control flowchart into that of Weinhofer's invention. By doing so, the system would be enhanced by allowing user to write any possible language into graphical elements. Thus, the system would provide graphical based of programming language to its end user.

As per claim 31, the limitation of the graphical elements are positioned automatically is taught by Weinhofer as the technique of programming interface 100 provides the user with a workspace 107 and make available a plurality of icons that can be dragged into the workspace 107 (see col. 6, lines 29-32). This claim is therefore rejected for the reason as set forth above.

As per claim 32, the limitation of wherein the graphical elements of the flowchart are linked together automatically is taught by Weinhofer as the technique of programming interface 100 comprising a plurality of icons 110-124 which are make available to the user in a workspace 107 and which are connected by a plurality of connection lines 126 (see col. 6, lines 14-17). This claim is therefore rejected for the reason as set forth above.

As per claim 33, the limitation of the flowchart is displayed in a form comprising one form selected from the group consisting of an enlarge and a reduce form are taught by Weinhofer as the technique of reduces the total number of icons that may be displayed on the screen at any one time (see col. 7, lines 7-8) and such that the workspace is actually larger than what fits on the user's screen at one time (see col. 7, lines 12-14). This claim is therefor rejected for the reason as set forth above.

7. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang and further in view of Stripf et al. (USPN: 6,263,487) hereinafter Stripf.

As per claim 22, Weinhofer-Zhang discloses the invention substantially as claimed aboved. Weinhofer-Zhang, however, does not disclose the limitation of wherein the structured text subprograms comprise structure text according to IEC 6-1131.

Stripf discloses structure text is according to IEC 6-1131 as the technique of with a programming unit, a user creates a control program in the form of a contact plan, a function plan, an instruction list or in any other suitable form, such as describes in the IEC 1131 standard (see col. 2, lines 47-50).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Stripf teaching of wherein the structured text subprograms comprise structure text according to IEC 6-1131 into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by permitting user working in only proper standard.

As per claim 23, Weinhofer-Zhang discloses the invention substantially as claimed aboved. Weinhofer-Zhang, however, does not disclose the limitation of switching between three forms of representation, the forms selected from the set consisting of structured textual language, contact plan and function plan.

Stripf discloses structure text is according to IEC 6-1131 as the technique of with a programming unit, a user creates a control program in the form of a contact plan, a function plan, an instruction list or in any other suitable form, such as describes in the IEC 1131 standard (see col. 2, lines 47-50).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Stripf teaching of switching between three forms of representation, the forms selected from the set consisting of structured textual language, contact plan and function plan into that of Weinhofer-Zhang combined

invention. By doing so, the system would be enhanced by allowing user to switch between three form of representation based on user desired choice.

8. Claims 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang and further in view of DeBenedictis et al. (USPN: 6,144,984) hereinafter DeBenedictis.

As per claim 24, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of wherein at least one programming language command selected form the group of loop and parallel branch is provided in motion control flowchart notation.

DeBenedictis discloses the limitation of at least one programming language command selected from the group of loop and parallel branch is provided in motion control flowchart notation as the technique of control enters at block 501 with no argument. Block 502 performs the initialization shown in table V. block 503 starts a loop over all the tasks in the network application (see col. 11, lines 43-45) and control enters at block 901 with implicit reference to a connection, i.e., the flowchart has access to data in one connection and variables in table III. Conditional 902 follows the data parallel branch if the task at both ends of the connection are data parallel (see col. 17, lines 22-25).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include DeBenedictis' teaching of at least one programming language command selected from the group of loop and parallel branch is provided in

motion control flowchart notation into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by allowing user to perform command selection for loop or parallel branch in motion control flowchart.

As per claim 30, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of wherein function blocks that represent function requiring a period of time, comprises step-enabling conditions in motion control flowchart.

DeBenedictis discloses the limitation of function blocks that represent function requiring a period of time, comprises step-enabling conditions in motion control flowchart as the technique of conditional 504 determines if the task is ready for execution by executing the process in Fig. 6. If Fig. 5 is being used as part of a simulation, argument t is changed to a time value by the process in Fig. 6, otherwise t is irrelevant (see col. 11, lines 46-49 and see Figs. 5-6).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include DeBenedictis' teaching of function blocks that represent function requiring a period of time, comprises step-enabling conditions in motion control flowchart into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by providing conditional timing parameter for controlling flowchart.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang and further in view of Wilson et al. (USPN: 6,289,252) hereinafter Wilson.

As per claim 26, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of wherein parameters are set for the function blocks via a mask input.

Wilson discloses the limitation of parameters are set for the function blocks via a mask input as the technique of operator input and other control input and parameters (see col. 14, lines 46-47).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Wilson teaching of parameters are set for the function blocks via a mask input into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by allowing user to input parameter for controlling motion controller.

10. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang and further in view of Schwenke et al. (USPN: 6,553,268) hereinafter Schwenke.

As per claim 27, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of wherein combine blocks into modules and representing the modules as function blocks in motion control flowchart.

Schwenke discloses the limitation of combine blocks into modules and representing the modules as function blocks in motion control flowchart as the technique of one type of module specification is a module "list" which allows zero or more component modules of a specific type (see col. 15, lines 62-64) and representing the modules as function blocks in motion control flowchart (see Fig. 18).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Schwenke teaching of combine blocks into modules and representing the modules as function blocks in motion control flowchart into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by allowing user to define function block module in the flowchart controller.

As per claim 28, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of modules are interleaved in motion control flowchart.

Schwenke discloses the limitation of modules are interleaved in motion control flowchart as the technique of child modules are plugged into their designating parent modules (see col. 15, lines 57-58).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Schwenke teaching of modules are interleaved in motion control flowchart into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by allowing user to define functional layers of block module in the flowchart controller.

11. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang and further in view of Stine (USPN: 6,466,827).

As per claim 29, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of assigning multiple variables in function blocks.

Stine discloses the limitation of assigning multiple variables in function blocks as the technique of each relay ladder object 66 maps to a different set of variables (see col. 9, lines 1-2).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Stine teaching of assigning multiple variables in function blocks into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by allowing control program executed on a standard computer, which control blocks/objects through its variables.

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weinhofer (USPN: 6,442,442) in view of Zhang et al. (USPN: 6,282,699) hereinafter Zhang and further in view of Lavallee et al. (USPN: 4,852,047) hereinafter Lavallee.

As per claim 34, Weinhofer-Zhang discloses the invention substantially as claimed above. Weinhofer-Zhang, however, does not disclose the limitation of wherein recompiling in motion control flowchart is possible by means of marks in the textual language.

Lavallee discloses the limitation of recompiling in motion control flowchart is possible by means of marks in the textual language as the technique of thereafter, upon recompiling, the program illustrated in Fig. 2B is executed via the system of Fig. 1, with the simple editing having been accomplished through the addition of an additional set of blocks in the displayed flowchart (see col. 9 line 66 to col. 10 line 2).

It would have obvious to one having ordinary skill in the art at the time the invention was made to include Lavallee teaching of recompiling in motion control flowchart is possible by means of marks in the textual language into that of Weinhofer-Zhang combined invention. By doing so, the system would be enhanced by providing most update information to an end user.

Reason for Allowance

13. Claim 25 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is an examiner's statement of reasons for allowance:

Examiner carefully considered claim 25 of the presented application. None of the cited arts of record including Schwenke et al. (USPN: 6,553,268), Stine (USPN: 6,466,827), Weinhofer (USPN: 6,442,442), Zhang et al. (USPN: 6,282,699), Wilson et al. (USPN: 6,289,252), Stripf et al. (USPN : 6,263,487), DeBenedictis et al. (USPN: 6,144,984), Lavallee et al. (USPN : 4,852,047) discloses nor suggests a method for

programming motion controllers, wherein a parallel branch is provided and individual commands are initiated in a given interpolator cycle within respective parallel branches. Specially, Fair et al. (USPN: 3,668,653) and Quarton are cited for interpolator cycle control. None of them disclose the interpolator cycle within respective parallel branches.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach a method for linking structure objects and modules in graphical programming motion controller.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CUONG T THAI whose telephone number is (703) 308-7234. The examiner can normally be reached on 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Cabeca, can be reached at (703) 308-3116.

Art Unit: 2173

The fax numbers for the organization where this application or proceeding is assigned are as follows:

(703) 746-7238 (After Final Communication)

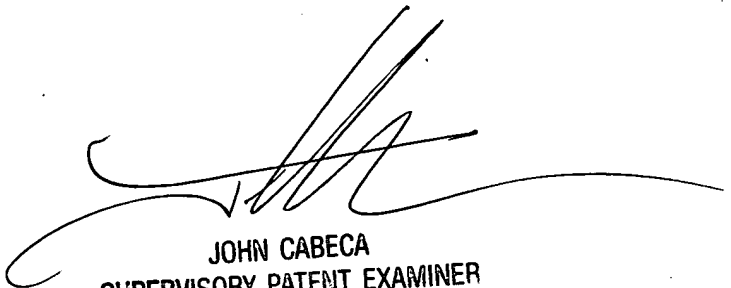
(703) 872-9306 (Official Communication)

(703) 746-7240 (For status inquiries, Draft Communication).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8000.

CUONG T THAI
Examiner
Art Unit 2173

March 05, 2004.



JOHN CABECA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100